

REMARKS

In response to the Office Action dated July 5, 2001, Applicants respectfully request reconsideration and withdrawal of the rejections of the claims.

OK The drawings were objected to under 37 C.F.R. § 1.83(a), with the statement that the strap must be shown or canceled from the claims. However, it is respectfully submitted that straps are clearly illustrated as elements 11 and 12 in Figure 5. See the specification at page 11, lines 1-6.

Claim 13 was rejected under the first paragraph of 35 U.S.C. § 112, on the grounds that the specification does not provide an adequate description of the strap. It is respectfully submitted, however, that the structure and function of the strap is sufficiently described in the application to enable a person of ordinary skill in the art to make and use the same, when the above-noted disclosure on page 11 is read in conjunction with Figure 5. If the rejection of this basis is maintained, the Examiner is requested to indicate why this disclosure is considered to be inadequate.

Claims 13 and 14 were rejected under the second paragraph of 35 U.S.C. § 112, as being indefinite. In response thereto, these claims have been amended to overcome the bases for the rejection.

Claims 1 and 10 were rejected under 35 U.S.C. § 102 as being anticipated by the *Ohtani et al.* patent (U.S. Patent No. 4,977,441), and claims 2-9 and 11-30 were rejected under 35 U.S.C. § 103 as being unpatentable over the *Ohtani et al.* patent in view of other cited references. It is respectfully submitted, however, that the *Ohtani et al.* patent does

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not disclose, nor otherwise suggest, the subject matter of the claims, whether considered by itself or in combination with the other references.

As discussed in the introductory portion of the application, one of the features of the present invention is an electronic chip device having an interface support film that can be creased or folded on itself without deterioration, e.g., breakage of the film and/or the interface. An example of such folding is illustrated in Figure 12 of the application. As described on page 11, lines 18-23, a support film that exhibits this property of the invention can be folded such that the radius of curvature R is less than 2.5 mm, and preferably less than 1 mm.



The Office Action alleges that the *Ohtani et al.* patent discloses an electronic chip device having an interface support film that is capable of being creased or folded over onto itself without deterioration, with specific reference to Figure 5 of the patent. This figure of the *Ohtani* patent illustrates the use of a tape carrier 8 on which semiconductor pellets are mounted. The tape carrier can be rolled up or rolled out to expose the semiconductor pellets. This disclosure is representative of the prior art over which the present invention constitutes an improvement. More specifically, as described in the paragraph at the top of page 2 of the present application, a tape carrier of the type disclosed in the *Ohtani* patent must be sufficiently rigid that it can be transported by sprockets that engage perforations at the longitudinal edges of the carrier. It can be seen that such perforations are clearly illustrated in Figure 5 of the *Ohtani* patent. The rigidity that is necessary to support transport by sprockets causes the tape carrier to break if it is folded onto itself.

It is respectfully submitted that the *Ohtani et al.* patent does not contain any disclosure suggesting that the tape carrier 8 can be folded over on to itself without breakage. In particular, the patent does not disclose, nor otherwise suggest, that the tape carrier can be folded so that the radius of curvature is less than 2.5 mm, or more preferably less than 1 mm, without breakage or deterioration of the carrier, as disclosed in Applicants' specification and recited in claims 4 and 5. Accordingly, it is respectfully submitted that the patent does not anticipate the subject matter of claims 1 and 10.

Furthermore, in rejecting claims 1 and 10, the Office Action states that the Ohtani patent discloses at least one flat conductive interface, with reference to element 6. However, element 6 of the Ohtani patent is not an interface, such as electrical contacts or an antenna, that provides for communication between a microcircuit and devices external thereto. Rather, element 6 is a wiring layer of the semiconductor pellet (see Figure 2 and column 3, lines 46-53). In other words, element 6 is an *internal* component of the microcircuit 2, not an external structure on a support film *to which* the microcircuit is connected, as recited in claim 1.

In addition to these general distinctions, it is respectfully submitted that the *Ohtani* patent does not suggest the subject matter of the other rejected claims. For example, with respect to the specific radii of curvature recited in claims 4 and 5, the Office Action states that the claimed subject matter "would have been an obvious design consideration." However, the Action does not provide any support for this conclusion. Since there is no showing in the prior art of an interface support film that can be folded over on itself without deterioration, there is no basis to suggest that the specific degrees of folding recited

in these claims would have, in fact, been obvious to one of ordinary skill in the art. If the rejection of claims 4 and 5 is repeated, or new claims 53-59 are rejected, the Examiner is requested to provide support in the prior art for the conclusion of obviousness.

 In a similar manner, the Office Action dismisses the features of claims 7, 8 and 9 as being "an obvious matter of design choice, absent evidence of criticality shown in the present invention ... , since Applicants have not disclosed that any particular [claimed feature] solves any stated problem or is for any particular purpose ..." It is respectfully submitted, however, that Applicants have, in fact, disclosed the purpose of these claimed features. In particular, these features contribute to the ability to provide an interface support film that is capable of being folded over onto itself without breakage or  deterioration of its components. Hence, they cannot be considered to be merely "obvious design choices", since, as noted above, the prior art does not demonstrate that a foldable interface support film was known, let alone one having these specific claimed features. Again, if the rejection of these claims is maintained, the Examiner is requested to provide an explanation of the prior art teachings which support the conclusion of obviousness.

Claim 11 recites that the interface on the support film is aluminum. In connection with this claimed subject matter, the Office Action relies upon the *Masahiko* patent (U.S. Patent No. 5,852,289), and states that it discloses an aluminum interface with reference to Figure 10, element 106. However, element 106 disclosed in the patent is not an interface as that term is employed in the context of the present invention, namely a device for providing communication between a microcircuit and an external structure, e.g., an antenna. Rather, element 106 is disclosed in the patent as being a reinforcing

plate. There is no disclosure that this reinforcing plate functions as an interface for the IC chip 101. Accordingly, it is respectfully submitted that the subject matter of claim 11 is not suggested by the teachings of the *Ohtani* and *Masahiko* patents.

Claim 13 recites that the electronic chip device includes a strap on the face of the film opposite the microcircuit. The Office Action alleges that the *Ohtani* patent discloses "a strap-type mounting for the interface", with a general reference to Figure 5. It is not apparent from the Office Action or Figure 5 which structure is considered to be a strap. Even if the patent discloses such a structural element, however, there is no disclosure that this element is on the face of the film which is opposite the microcircuit, as recited in claim 13. As can be clearly seen in Figure 5 of the *Ohtani* patent, there are no elements on the backside of the tape carrier 8, i.e., the face opposite the face on which the semiconductor pellets 2 are located. Accordingly, the *Ohtani* patent does not disclose, nor otherwise suggest, the subject matter of claim 13.

Claim 14 recites that the width of the turns of the interface is thinner around the microcircuit than elsewhere. The rejection of this claim makes general reference to the *Masahiko* patent, but does not identify where the claimed feature is disclosed. In fact, the rejection does not even address the relative widths of the turn in its discussion of the *Masahiko* patent. Referring to Figure 6, it appears that the windings of the antenna 24 have a uniform width throughout their extent, rather than being thinner in the area of the microcircuit. Accordingly, it is respectfully submitted that the *Masahiko* patent does not disclose the subject matter recited in claim 14.

Claim 15 recites that the interface comprises turns of conductive material, and the microcircuit is placed *between* the turns. The rejection of this claim alleges that the *Masahiko* patent discloses this structure, with reference to Figure 3. However, as illustrated in Figure 3 of the patent, the integrated circuit chip 13 is located *outside* the turns of the antenna coil 14. Hence, the *Masahiko* patent does not suggest the subject matter of claim 15.

From the foregoing, it can be seen that a number of the features recited in the dependent claims are not disclosed in the references. Additional features disclosed in other dependent claims are likewise neither disclosed nor suggested by the references. However, for the sake of brevity, these further distinguishing features will not be discussed at this time.

Another feature of the present invention, recited in original claims 2 and 3, as well as new claims 58 and 60-64, is a compensation film having a recess containing the microcircuit, its connections and an encapsulating material. An example of this compensation film is illustrated in Figures 9-11A as element 22. As best seen in Figures 9 and 11A, the compensation film 22 includes a recess 23 that accommodates the microcircuit 4, connecting wires 7 and 8, and the encapsulating material 13.

The rejection of claims 2 and 3 refers to the polyimide film 5 in the *Ohtani* patent as being a compensation film. With respect to the claimed recess that contains the microcircuit, its connection and an encapsulating material, the Office Action merely makes general reference to Figure 4 of the *Ohtani* patent. It is not seen where a recess in the film 5, for accommodating the microcircuit, its connections and an encapsulating material, is

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illustrated in Figure 4. Rather, as can be seen from Figure 3, the polyimide film 5 is disposed over the top of the semiconductor pellet 2, and has a uniform thickness across its entire width. There is no disclosure of a *recess* in this film, except for the feed holes 9 for transporting the tape carrier (column 4, lines 15-17). These feed holes do not accommodate the semiconductor pellets or their connections.

Accordingly, it is respectfully submitted that the *Ohtani* patent does not disclose a compensation film of the type recited in rejected claims 2 and 3, as well as new claims 58 and 60-64.

For the foregoing reasons, it is respectfully submitted that all pending claims are patentable over the references of record. Reconsideration and withdrawal of the rejections is respectfully requested.

Respectfully submitted,

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